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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Giovanni Maria Carlomagno

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EXAMINER

SZEWCZYK, CYNTHIA

ART UNIT

PAPER NUMBER

1791

NOTIFICATION DATE

DELIVERY MODE

05/12/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/551,117	Applicant(s) CARLOMAGNO, GIOVANNI MARIA	
	Examiner CYNTHIA SZEWCZYK	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of BLACK (US 2,921,411).

FRANK teaches an apparatus for tempering a bent glass sheet, comprising means for conveying the bent glass sheet (col. 2, lines 41-42) and a pair of blastheads (42 and 44 in figure 1). The blastheads comprise upper (42 in figure 1) and lower blastheads (44 in figure 1), wherein each blasthead comprises a plurality of spaced elongated plenums (52 in figure 2) and wherein the plenums extend transversely to the direction of conveyance of the bent glass sheet (see figure 2). The plenums contain an array of quench nozzles (58 in figure 2). Figure 2 shows that the nozzle bars contain two rows of nozzles (holes in figure), however, FRANK also discloses that the plenum may contain one row of individual nozzles extending from the plenum (col. 3 lines 56-59). Figure 2 shows that the quench nozzles of each plenum are mutually inclined to provide diverging jets of quench gas and that each array of quench nozzles is curved in at least one direction. Figure 2 shows space between each plenum, which would

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provide side access between plenums. FRANK discloses that the nozzle bar has nozzle holes that extend from the surface (58) through the plenum (55) to communicate with the air openings (51) (col. 3 lines 51-56); however, FRANK does not explicitly state that the nozzle bars having a length exceeding their diameter.

BLACK teaches an apparatus for chilling bent glass. BLACK teaches that the apparatus comprises nozzle bars (figure 10). Figure 11 shows that the nozzles are connected to an air source having a length exceeding their diameter. It would have been obvious to one of ordinary skill in the art that the nozzle bar of FRANK could have had a similar construction because BLACK discloses that this set up allows for different inclination of the nozzles and may be adjusted based on the curvature of the glass (co. 6 lines 56-60).

Regarding claim 2, figure 2 of FRANK shows that the array of quench nozzles (58) comprises rows of quench nozzles extending along lines which are curved in the direction of elongation of the plenums.

Regarding claim 3, FRANK discloses that the rows of quench nozzles are curved to match the curvature of the bent glass sheet and are curved in a direction that is the same as the bent glass sheet (col. 3, lines 59-63).

Regarding claim 4, FRANK discloses that the plenums may be arranged longitudinally, in the direction of conveyance (col. 4 lines 55-57).

Regarding claim 5, see the discussion of claim 3 above.

Regarding claim 6, BLACK discloses that the nozzles may be arranged so that they are movable towards and away from each other to adjust for the curvature of the glass (col. 6 lines 57-60).

Regarding claim 7, figures 2 and 3a-d of KRANK show that the plenums are attached by a connecting surface (48, 148, 248, 348, 448). FRANK discloses that the connecting surface may be tapered in various directions (col. 4 lines 47-53), which obviously would include tapering in a direction away from the center line.

Regarding claim 8, see the discussion of claim 7. The arrangement of the upper blast heads would be a mirror image of the bottom blast heads, therefore if the tapering in the bottom blast heads were in a direction away from the center line, the tapering in the top blast heads would be in a direction towards the centerline.

Regarding claim 9, figure 2 of FRANK shows that the quench nozzles are formed as bores in a nozzle bar (58), and figure 2 also shows that the outlets of the nozzles are level with a surface of the bar.

3. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of BLACK (US 2,921,411) as applied to claims 1- 9 above, and further in view of MASUHIDE (JP 2000-247633).

FRANK as modified by BLACK teaches an apparatus for tempering a bent glass sheet with air quenching. Modified FRANK is silent to the shape of the nozzle bores.

MASUHIDE teaches a bed structure for providing glass sheets with an air support. Figure 3 of MASUHIDE shows that the holes are part cylindrical (20) and conical (23). It would have been obvious to one of ordinary skill in the art that the bore of modified FRANK could have had the shape of the air discharge hole of MASUHIDE because modified FRANK simply requires that the bores supply air through openings (col. 3, lines 45-48), which MASUHIDE would accomplish.

Regarding claim 11, figure 2 of MASUHIDE shows that the length of the cylindrical part of the bore (20) is greater than the length of the conical part (23).

Regarding claim 12, MASUHIDE teaches that the material of the bores, and in turn the bar, may be a heat resistant ceramic (trans. para. 0024).

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of BLACK (US 2,921,411) as applied to claims 1-9 above, and further in view of FUNK et al. (US 2006/0277947 A1).

Modified FRANK teaches an apparatus for tempering a bent glass sheet with air quenching. Modified FRANK is silent to the shape of the nozzle bores.

FUNK teaches a bed structure for providing glass sheets with an air support. Figure 5 of FUNK shows that the holes are part cylindrical (18) and conical (16). It would have been obvious to one of ordinary skill in the art that the bore of modified FRANK could have had the shape of the air discharge hole of FUNK because modified FRANK simply requires that the bores supply air through openings (col. 3, lines 45-48), which FUNK would accomplish.

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Regarding claim 11, figure 5 of FUNK shows that the length of the cylindrical part of the bore (18) is greater than the length of the conical part (16).

Regarding claim 12, FUNK teaches that the material of the surface, and in turn the bar, may be a ceramic (para. 0042).

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of BLACK (US 2,921,411) as applied to claims 1-9 above, and further in view of RHONEHOUSE (US 4,297,121).

FRANK as modified by BLACK teaches an apparatus for tempering a bent glass sheet with air quenching using nozzle bars. Modified FRANK is silent to the use of polytetrafluoroethene.

RHONEHOUSE teaches that Teflon (also known as polytetrafluoroethene) may be used in glass manufacturing processes because it is heat resistant and it reduces wear on glass manufacturing apparatuses (col. 5, lines 14-20). It would have been obvious to one of ordinary skill in the art that Teflon could have been used as the material of the bar because it is a heat-resistant material able to withstand temperatures of heated glass.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of BLACK (US 2,921,411) as applied to claims 1-9 above, and further in view of MCMASTER et al. (US 4,515,622).

FRANK as modified by BLACK teaches an apparatus for tempering a bent glass sheet with air quenching. Modified FRANK is silent to the arrangement of the nozzle outlets of the nozzle bar.

MCMASTER teaches a glass sheet quench with oppositely angled jets. MCMASTER teaches that the quench means may be a nozzle bar with holes provided for discharging quenching gas (col. 3 lines 23-27). MCMASTER teaches that the holes extend in opposite angular directions (col. 3 lines 35-38). MCMASTER teaches that this is advantageous to provide a staggered arrangement of nozzles in order to provide a uniform pattern on the glass sheet (col. 4 lines 20-23) and also reduces pressure buildup of spent quenching gas and provides an energy efficient quench (col. 2 lines 28-33). It would have been obvious to one of ordinary skill in the art to use a staggered nozzle pattern in the nozzle bar of modified FRANK discloses that it is important to accurately control the gas flow during quenching (col. 4 lines 58-64) which MCMASTER would help accomplish.

Response to Arguments

7. Applicant's arguments, see pages 7-8, filed April 23, 2010, with respect to the rejection(s) of claim(s) 1-3 and 9 under FRANK have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of BLACK.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CYNTHIA SZEWCZYK whose telephone number is (571)270-5130. The examiner can normally be reached on Monday through Thursday 7:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

CS